

Worksheet: Piecewise Functions

Minimum: 10 boxed, Maximum all. Do what you need.

Evaluate the function for the given value of x.

$$f(x) = \begin{cases} 3, & \text{if } x \leq 0 \\ 2, & \text{if } x > 0 \end{cases}$$

$$g(x) = \begin{cases} x + 5, & \text{if } x \leq 3 \\ 2x - 1, & \text{if } x > 3 \end{cases}$$

$$h(x) = \begin{cases} \frac{1}{2}x - 4, & \text{if } x \leq -2 \\ 3 - 2x, & \text{if } x > -2 \end{cases}$$

1. $f(2)$

2. $f(-4)$

3. $f(0)$

4. $f\left(\frac{1}{2}\right)$

5. $g(7)$

6. $g(0)$

7. $g(-1)$

8. $g(3)$

9. $h(-4)$

10. $h(-2)$

11. $h(-1)$

12. $h(6)$

Match the piecewise function with its graph.

13. $f(x) = \begin{cases} x - 4, & \text{if } x \leq 1 \\ 3x, & \text{if } x > 1 \end{cases}$

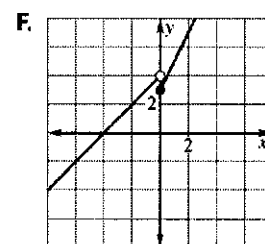
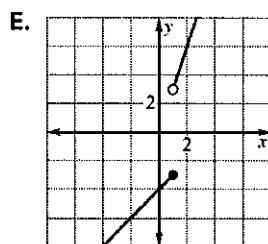
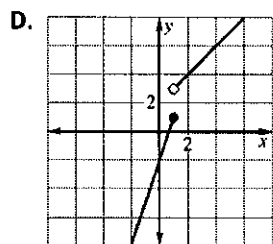
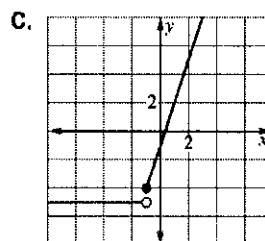
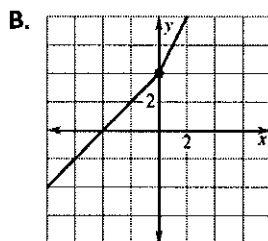
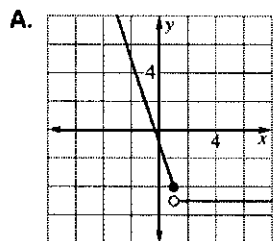
14. $f(x) = \begin{cases} x + 4, & \text{if } x \leq 0 \\ 2x + 4, & \text{if } x > 0 \end{cases}$

15. $f(x) = \begin{cases} 3x - 2, & \text{if } x \leq 1 \\ x + 2, & \text{if } x > 1 \end{cases}$

16. $f(x) = \begin{cases} 2x + 3, & \text{if } x \geq 0 \\ x + 4, & \text{if } x < 0 \end{cases}$

17. $f(x) = \begin{cases} 3x - 1, & \text{if } x \geq -1 \\ -5, & \text{if } x < -1 \end{cases}$

18. $f(x) = \begin{cases} -3x - 1, & \text{if } x \leq 1 \\ -5, & \text{if } x > 1 \end{cases}$



Graph the function.

19. $f(x) = \begin{cases} x + 3, & \text{if } x \leq 0 \\ 2x, & \text{if } x > 0 \end{cases}$

20. $f(x) = \begin{cases} x + 1, & \text{if } x < 0 \\ -x + 1, & \text{if } 0 \leq x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$

21. $f(x) = \begin{cases} 2, & \text{if } x \leq -3 \\ -1, & \text{if } -3 < x < 3 \\ 3, & \text{if } x \geq 3 \end{cases}$

22. The admission rates at an amusement park are as follows.

Children 5 years old and under: free

Children between 5 years and 12 years, inclusive: \$10.00

Children between 12 years and 18 years, inclusive: \$25.00

Adults: \$35.00

- a) Write a piecewise function that gives the admission price for a given age.
b) Graph the function.

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Pick 1.

**Pre Calculus Honors
Piecewise Puzzles**

Name:
Date:

Find the value of c and d to make each function continuous:

1.	$f(x) = \begin{cases} -\frac{2}{3}x - 4 & x < -3 \\ 2x + c & x \geq -3 \end{cases}$	2.	$f(x) = \begin{cases} -\frac{2}{3}x - 4 & x < -3 \\ dx + c & -1 > x > -3 \\ -x + 7 & x > 1 \end{cases}$
3.	$f(x) = \begin{cases} (x+c)^2 - 2 & x < -2 \\ -\frac{1}{2}x + 1 & x \geq -2 \end{cases}$	4.	$f(x) = \begin{cases} -2(x+4)^2 - 2 & x < -2 \\ cx & x \geq -2 \end{cases}$
5.	$f(x) = \begin{cases} \frac{5}{3}x + 2 & x < 3 \\ cx + 8 & x \geq -3 \end{cases}$	6.	$f(x) = \begin{cases} 3x + 10 & x < -2 \\ cx + d & -2 \leq x \leq 2 \\ 3x - 4 & x > 2 \end{cases}$